535,053

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 June 2004 (03.06.2004)

PCT

(10) International Publication Number
WO 2004/047143 A1

(51) International Patent Classification[7]: H01J 49/32, 49/02

(21) International Application Number: PCT/GB2003/004658

(22) International Filing Date: 28 October 2003 (28.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0226715.1 15 November 2002 (15.11.2002) GB
60/427,558 20 November 2002 (20.11.2002) US

(71) Applicant *(for all designated States except US)*: **MICROMASS UK LIMITED** [GB/GB]; Atlas Park, Simonsway, Manchester M22 5PP (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **JONES, Rhys** [GB/GB]; 4 Legh Court, Sale, Cheshire M33 2SQ (GB). **BATEMAN, Robert, Harold** [GB/GB]; Parkfield House, Parkfield Road, Knutsford, Cheshire WA16 8NP (GB).

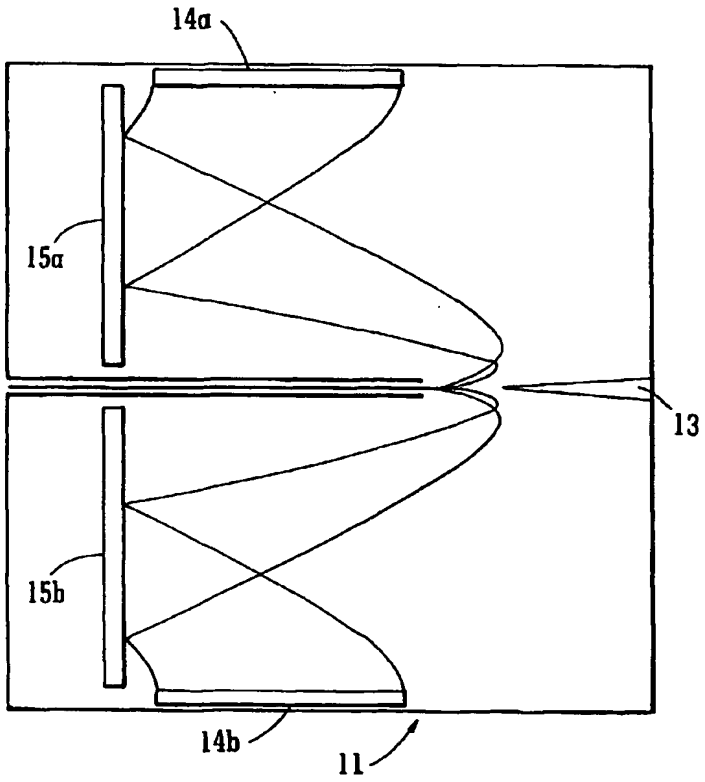
(74) Agent: **Frank B. Dehn & Co.**; 179 Queen Victoria Street, London EC4V 4EL (GB).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: MASS SPECTROMETER



(57) Abstract: A magnetic sector mass spectrometer is disclosed comprising an ion detector (11) wherein a reflecting electrode (13) is used to divide an ion beam in the direction of mass dispersion into two separate ion beams. The two ion beams are directed onto two detectors which preferably comprise two or more conversion dynodes (15a, 15b) and two or more corresponding microchannel plate detectors (14a, 14b) to detect electrons produced by the conversion dynodes (15a, 15b). If the signal from the two detectors differs substantially then the ion beam can be determined to include interference ions. Conversely, if the signal from the two detectors is substantially the same then the ion beam can be determined to be substantially free from interference ions.

WO 2004/047143 A1